WEST Search History

DATE: Tuesday, September 17, 2002

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT,PGPB,JPAB,EPAB,DWPI; PLUR=YES; OP=ADJ			
L7	L4 and rotavirus	121	L7
L6	L5 and rotavirus	0	L6
L5	L1 and (cholera toxin (s) fusion protein)	0	L5
L4	L2 and (virus or enterotoxic)	458	L4
L3	L2 and virus	457	L3
L2	L1 and (A2 or B) and subunit	521	L2
L1	cholera toxin and fusion protein	751	L1

END OF SEARCH HISTORY

```
=> s fusion protein and cholera toxin
         97066 FUSION
          7036 FUSIONS
        100112 FUSION
                 (FUSION OR FUSIONS)
       1093483 PROTEIN
        919576 PROTEINS
       1416906 PROTEIN
                 (PROTEIN OR PROTEINS)
         47236 FUSION PROTEIN
                 (FUSION(W)PROTEIN)
         15624 CHOLERA
             1 CHOLERAS
         15625 CHOLERA
                 (CHOLERA OR CHOLERAS)
         49900 TOXIN
         37660 TOXINS
         66984 TOXIN
                 (TOXIN OR TOXINS)
          8746 CHOLERA TOXIN
                 (CHOLERA(W)TOXIN)
L1         143 FUSION PROTEIN AND CHOLERA TOXIN

=> display l1
ENTER ANSWER NUMBER OR RANGE (1):50- 100
ENTER DISPLAY FORMAT (BIB):bib
YOU HAVE REQUESTED DATA FROM 95 ANSWERS - CONTINUE? Y/(N):n

=> display l1
ENTER ANSWER NUMBER OR RANGE (1):50-100
ENTER DISPLAY FORMAT (BIB):bib

L1   ANSWER 50 OF 143     MEDLINE
AN   1999092760     MEDLINE
DN   99092760   PubMed ID: 9876933
TI   Stepwise transplantation of an active site loop between heat-labile
     enterotoxins LT-II and LT-I and characterization of the obtained hybrid
     toxins.
AU   Feil I K; Platas A A; van den Akker F; Reddy R; Merritt E A; Storm D R;
     Hol W G
CS   Howard Hughes Medical Institute, Department of Biological Structure,
     University of Washington, Seattle 98195-7742, USA.
NC   AI 34501 (NIAID)
SO   PROTEIN ENGINEERING, (1998 Nov) 11 (11) 1103-9.
     Journal code: 8801484. ISSN: 0269-2139.
CY   ENGLAND: United Kingdom
DT   Journal; Article; (JOURNAL ARTICLE)
LA   English
FS   Priority Journals
EM   199903
ED   Entered STN: 19990324
     Last Updated on STN: 19990324
     Entered Medline: 19990308

L1   ANSWER 51 OF 143     MEDLINE
AN   1999053665     MEDLINE
DN   99053665   PubMed ID: 9839930
TI   Intranasal immunization with a plant virus expressing a peptide from HIV-1
     gp41 stimulates better mucosal and systemic HIV-1-specific IgA and IgG
     than oral immunization.
AU   Durrani Z; McInerney T L; McLain L; Jones T; Bellaby T; Brennan F R;
     Dimmock N J
CS   Department of Biological Sciences, University of Warwick, Coventry, UK.
```

SO JOURNAL OF IMMUNOLOGICAL METHODS, (1998 Nov 1) 220 (1-2) 93-103.
Journal code: 1305440. ISSN: 0022-1759.
CY Netherlands
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals; AIDS
EM 199812
ED Entered STN: 19990115
Last Updated on STN: 19990115
Entered Medline: 19981216

L1 ANSWER 52 OF 143 MEDLINE
AN 1999002398 MEDLINE
DN 99002398 PubMed ID: 9788349
TI A plant-based **cholera toxin** B subunit-insulin **fusion protein** protects against the development of autoimmune diabetes.
AU Arakawa T; Yu J; Chong D K; Hough J; Engen P C; Langridge W H
CS Center for Molecular Biology and Gene Therapy, Department of Microbiology and Molecular Genetics, School of Medicine, Loma Linda University, CA 92350, USA.
SO NATURE BIOTECHNOLOGY, (1998 Oct) 16 (10) 934-8.
Journal code: 9604648. ISSN: 1087-0156.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199812
ED Entered STN: 19990115
Last Updated on STN: 19990115
Entered Medline: 19981228

L1 ANSWER 53 OF 143 MEDLINE
AN 1998442834 MEDLINE
DN 98442834 PubMed ID: 9771891
TI Loss of activation of Gs but not Gi following expression of an alpha2A-adrenoceptor-Gi1alpha **fusion protein**.
AU Sautel M; Milligan G
CS Division of Biochemistry and Molecular Biology, Institute of Biomedical and Life Sciences, University of Glasgow, UK.
SO FEBS LETTERS, (1998 Sep 25) 436 (1) 46-50.
Journal code: 0155157. ISSN: 0014-5793.
CY Netherlands
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199810
ED Entered STN: 19990106
Last Updated on STN: 20000303
Entered Medline: 19981028

L1 ANSWER 54 OF 143 MEDLINE
AN 1998407736 MEDLINE
DN 98407736 PubMed ID: 9737718
TI Inhibition of TGF-beta-stimulated CTGF gene expression and anchorage-independent growth by cAMP identifies a CTGF-dependent restriction point in the cell cycle.
AU Kothapalli D; Hayashi N; Grotendorst G R
CS Department of Cell Biology and Anatomy, University of Miami School of Medicine, Florida 33136, USA.
NC GM37223 (NIGMS)
SO FASEB JOURNAL, (1998 Sep) 12 (12) 1151-61.
Journal code: 8804484. ISSN: 0892-6638.
CY United States

DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199809
ED Entered STN: 19981008
Last Updated on STN: 19981008
Entered Medline: 19980929

L1 ANSWER 55 OF 143 MEDLINE
AN 1998389309 MEDLINE
DN 98389309 PubMed ID: 9723916
TI Evidence that a globular conformation is not compatible with FhaC-mediated secretion of the Bordetella pertussis filamentous haemagglutinin.
AU Guedin S; Willery E; Locht C; Jacob-Dubuisson F
CS INSERM U447, IBL, Institut Pasteur de Lille, France.
SO MOLECULAR MICROBIOLOGY, (1998 Aug) 29 (3) 763-74.
Journal code: 8712028. ISSN: 0950-382X.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199812
ED Entered STN: 19990115
Last Updated on STN: 20020420
Entered Medline: 19981223

L1 ANSWER 56 OF 143 MEDLINE
AN 1998380378 MEDLINE
DN 98380378 PubMed ID: 9712781
TI Effectiveness of liposomes possessing surface-linked recombinant B subunit of **cholera toxin** as an oral antigen delivery system.
AU Harokopakis E; Hajishengallis G; Michalek S M
CS Departments of Microbiology and Oral Biology, University of Alabama at Birmingham, Birmingham, Alabama 35294, USA.
NC AI 33544 (NIAID)
DE 08182 (NIDCR)
DE 09081 (NIDCR)
+
SO INFECTION AND IMMUNITY, (1998 Sep) 66 (9) 4299-304.
Journal code: 0246127. ISSN: 0019-9567.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199810
ED Entered STN: 19981020
Last Updated on STN: 20000303
Entered Medline: 19981002

L1 ANSWER 57 OF 143 MEDLINE
AN 1998346502 MEDLINE
DN 98346502 PubMed ID: 9682972
TI A novel concept in mucosal adjuvanticity: the CTA1-DD adjuvant is a B cell-targeted **fusion protein** that incorporates the enzymatically active **cholera toxin** A1 subunit.
AU Agren L; Lowenadler B; Lycke N
CS Department of Medical Microbiology and Immunology, University of Goteborg, Sweden.
SO IMMUNOLOGY AND CELL BIOLOGY, (1998 Jun) 76 (3) 280-7. Ref: 47
Journal code: 8706300. ISSN: 0818-9641.
CY Australia
DT Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)

LA English
FS Priority Journals
EM 199904
ED Entered STN: 19990426
Last Updated on STN: 19990426
Entered Medline: 19990413

L1 ANSWER 58 OF 143 MEDLINE
AN 1998285626 MEDLINE
DN 98285626 PubMed ID: 9621114
TI beta1,6 N-acetylglucosaminyltransferase (core 2 GlcNAc-T) expression in normal rat tissues and different cell lines: evidence for complex mechanisms of regulation.
AU VanderElst I E; Datti A
CS Department of Cell and Molecular Biology, Section of Biochemistry and Molecular Biology, University of Perugia, 06126 Perugia, Italy.
SO GLYCOBIOLOGY, (1998 Jul) 8 (7) 731-40.
Journal code: 9104124. ISSN: 0959-6658.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199808
ED Entered STN: 19980820
Last Updated on STN: 19980820
Entered Medline: 19980813

L1 ANSWER 59 OF 143 MEDLINE
AN 1998282451 MEDLINE
DN 98282451 PubMed ID: 9618729
TI Mapping of B epitopes in GRA4, a dense granule antigen of Toxoplasma gondii and protection studies using recombinant proteins administered by the oral route.
AU Mevelec M N; Mercereau-Puijalon O; Buzoni-Gatel D; Bourguin I; Chardes T; Dubremetz J F; Bout D
CS CJF INSERM 93-09, UFR des Sciences Pharmaceutiques, Tours, France.
SO PARASITE IMMUNOLOGY, (1998 Apr) 20 (4) 183-95.
Journal code: 7910948. ISSN: 0141-9838.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199808
ED Entered STN: 19980828
Last Updated on STN: 19980828
Entered Medline: 19980820

L1 ANSWER 60 OF 143 MEDLINE
AN 1998269904 MEDLINE
DN 98269904 PubMed ID: 9607021
TI Protection against measles virus-induced encephalitis by antibodies from mice immunized intranasally with a synthetic peptide immunogen.
AU Hathaway L J; Obeid O E; Steward M W
CS London School of Hygiene and Tropical Medicine, UK.
SO VACCINE, (1998 Jan-Feb) 16 (2-3) 135-41.
Journal code: 8406899. ISSN: 0264-410X.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199806
ED Entered STN: 19980713
Last Updated on STN: 19980713
Entered Medline: 19980629

L1 ANSWER 61 OF 143 MEDLINE
AN 1998249000 MEDLINE
DN 98249000 PubMed ID: 9576833
TI Notch4 and Wnt-1 proteins function to regulate branching morphogenesis of mammary epithelial cells in an opposing fashion.
AU Uyttendaele H; Soriano J V; Montesano R; Kitajewski J
CS Department of Pathology, Columbia University, College of Physicians and Surgeons, New York, New York 10032, USA.
SO DEVELOPMENTAL BIOLOGY, (1998 Apr 15) 196 (2) 204-17.
Journal code: 0372762. ISSN: 0012-1606.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199805
ED Entered STN: 19980611
Last Updated on STN: 19980611
Entered Medline: 19980529

L1 ANSWER 62 OF 143 MEDLINE
AN 1998179119 MEDLINE
DN 98179119 PubMed ID: 9520296
TI Fusions to the **cholera toxin** B subunit: influence on pentamerization and GM1 binding.
AU Liljeqvist S; Stahl S; Andreoni C; Binz H; Uhlen M; Murby M
CS Department of Biochemistry and Biotechnology, Kungliga Tekniska Hogskolan, Stockholm, Sweden.
SO JOURNAL OF IMMUNOLOGICAL METHODS, (1997 Dec 29) 210 (2) 125-35.
Journal code: 1305440. ISSN: 0022-1759.
CY Netherlands
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199804
ED Entered STN: 19980410
Last Updated on STN: 19980410
Entered Medline: 19980402

L1 ANSWER 63 OF 143 MEDLINE
AN 1998114341 MEDLINE
DN 98114341 PubMed ID: 9453596
TI Mucosal immunogenicity of a holotoxin-like molecule containing the serine-rich Entamoeba histolytica protein (SREHP) fused to the A2 domain of **cholera toxin**.
AU Sultan F; Jin L L; Jobling M G; Holmes R K; Stanley S L Jr
CS Department of Medicine, Washington University School of Medicine, St. Louis, Missouri 63110, USA.
NC AI01231 (NIAID)
AI30084 (NIAID)
AI31940 (NIAID)
SO INFECTION AND IMMUNITY, (1998 Feb) 66 (2) 462-8.
Journal code: 0246127. ISSN: 0019-9567.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199802
ED Entered STN: 19980224
Last Updated on STN: 19980224
Entered Medline: 19980212

L1 ANSWER 64 OF 143 MEDLINE
AN 1998096687 MEDLINE

DN 98096687 PubMed ID: 9435018
TI Construction and characterization of versatile cloning vectors for efficient delivery of native foreign proteins to the periplasm of Escherichia coli.
AU Jobling M G; Palmer L M; Erbe J L; Holmes R K
CS Department of Microbiology, University of Colorado Health Sciences Center, Denver 80262, USA.
NC AI-31940 (NIAID)
SO PLASMID, (1997) 38 (3) 158-73.
Journal code: 7802221. ISSN: 0147-619X.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199803
ED Entered STN: 19980312
Last Updated on STN: 19980312
Entered Medline: 19980305

L1 ANSWER 65 OF 143 MEDLINE
AN 1998089467 MEDLINE
DN 98089467 PubMed ID: 9427998
TI Evaluation of recombinant protein r140, a polypeptide segment of tegumental glycoprotein Sm25, as a defined antigen vaccine against Schistosoma mansoni.
AU Suri P K; Goldberg M; Madikizela M; Petzke M M; Bungiro R D Jr; Davies S J; Chakraborty B; Nguyen K B; McCray J W Jr; Knopf P M
CS Department of Molecular Microbiology and Immunology, Brown University, Providence, RI 02912, USA.
NC 5-R01 AI31224 (NIAID)
SO PARASITE IMMUNOLOGY, (1997 Nov) 19 (11) 515-29.
Journal code: 7910948. ISSN: 0141-9838.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199802
ED Entered STN: 19980226
Last Updated on STN: 19980226
Entered Medline: 19980217

L1 ANSWER 66 OF 143 MEDLINE
AN 1998085272 MEDLINE
DN 98085272 PubMed ID: 9423288
TI Expression of **cholera toxin** B subunit oligomers in transgenic potato plants.
AU Arakawa T; Chong D K; Merritt J L; Langridge W H
CS Department of Microbiology and Molecular Genetics, School of Medicine, Loma Linda University, CA 92350, USA.
SO TRANSGENIC RESEARCH, (1997 Nov) 6 (6) 403-13.
Journal code: 9209120. ISSN: 0962-8819.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199802
ED Entered STN: 19980224
Last Updated on STN: 19980224
Entered Medline: 19980206

L1 ANSWER 67 OF 143 MEDLINE
AN 1998060840 MEDLINE
DN 98060840 PubMed ID: 9396750
TI Compartmentalized IgE receptor-mediated signal transduction in living

cells.
AU Stauffer T P; Meyer T
CS Department of Cell Biology, Duke University Medical Center, Durham, North Carolina 27710, USA.
NC GM-48113 (NIGMS)
GM-51457 (NIGMS)
SO JOURNAL OF CELL BIOLOGY, (1997 Dec 15) 139 (6) 1447-54.
Journal code: 0375356. ISSN: 0021-9525.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199801
ED Entered STN: 19980129
Last Updated on STN: 19980129
Entered Medline: 19980113

L1 ANSWER 68 OF 143 MEDLINE
AN 1998035007 MEDLINE
DN 98035007 PubMed ID: 9368632
TI Strong mucosal adjuvanticity of **cholera toxin** within lipid particles of a new multiple emulsion delivery system for oral immunization.
AU Tomasi M; Dertzbaugh M T; Hearn T; Hunter R L; Elson C O
CS Division of Gastroenterology and Hepatology, University of Alabama at Birmingham 35294-0007, USA.
NC 2U01 AI 33231 (NIAID)
DK44240 (NIDDK)
SO EUROPEAN JOURNAL OF IMMUNOLOGY, (1997 Oct) 27 (10) 2720-5.
Journal code: 1273201. ISSN: 0014-2980.
CY GERMANY: Germany, Federal Republic of
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199712
ED Entered STN: 19980109
Last Updated on STN: 19980109
Entered Medline: 19971210

L1 ANSWER 69 OF 143 MEDLINE
AN 97426249 MEDLINE
DN 97426249 PubMed ID: 9282953
TI Functional coupling of endogenous serotonin (5-HT1B) and calcitonin (C1a) receptors in CHO cells to a cyclic AMP-responsive luciferase reporter gene.
AU George S E; Bungay P J; Naylor L H
CS Department of Biosciences, The University of Kent at Canterbury, England.
SO JOURNAL OF NEUROCHEMISTRY, (1997 Sep) 69 (3) 1278-85.
Journal code: 2985190R. ISSN: 0022-3042.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199709
ED Entered STN: 19971008
Last Updated on STN: 19990129
Entered Medline: 19970925

L1 ANSWER 70 OF 143 MEDLINE
AN 97378082 MEDLINE
DN 97378082 PubMed ID: 9234763
TI Oral immunization with attenuated vaccine strains of Vibrio cholerae expressing a dodecapeptide repeat of the serine-rich Entamoeba histolytica protein fused to the **cholera toxin** B subunit induces

systemic and mucosal antiamebic and anti-V. cholerae antibody responses in mice.
AU Ryan E T; Butterton J R; Zhang T; Baker M A; Stanley S L Jr; Calderwood S B
CS Infectious Disease Unit, Massachusetts General Hospital, Boston 02114, USA.
NC AI30084 (NIAID)
AI40725 (NIAID)
KO8 AI01386 (NIAID)
+
SO INFECTION AND IMMUNITY, (1997 Aug) 65 (8) 3118-25.
Journal code: 0246127. ISSN: 0019-9567.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199708
ED Entered STN: 19970825
Last Updated on STN: 19970825
Entered Medline: 19970814

L1 ANSWER 71 OF 143 MEDLINE
AN 97346055 MEDLINE
DN 97346055 PubMed ID: 9202478
TI Authentic display of a **cholera toxin** epitope by chimeric type 1 fimbriae: effects of insert position and host background.
AU Stentebjerg-Olesen B; Pallesen L; Jensen L B; Christiansen G; Klemm P
CS Department of Microbiology, Technical University of Denmark, Lyngby, Denmark.
SO MICROBIOLOGY, (1997 Jun) 143 (Pt 6) 2027-38.
Journal code: 9430468. ISSN: 1350-0872.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199708
ED Entered STN: 19970908
Last Updated on STN: 20000303
Entered Medline: 19970828

L1 ANSWER 72 OF 143 MEDLINE
AN 97332547 MEDLINE
DN 97332547 PubMed ID: 9188781
TI Gastric GATA-6 DNA-binding protein: proteolysis induced by cAMP.
AU Nakagawa R; Sato R; Futai M; Yokosawa H; Maeda M
CS Laboratory of Biochemistry, Faculty of Pharmaceutical Sciences, Osaka University, Suita, Japan.
SO FEBS LETTERS, (1997 May 26) 408 (3) 301-5.
Journal code: 0155157. ISSN: 0014-5793.
CY Netherlands
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199707
ED Entered STN: 19970721
Last Updated on STN: 19970721
Entered Medline: 19970710

L1 ANSWER 73 OF 143 MEDLINE
AN 97303185 MEDLINE
DN 97303185 PubMed ID: 9159128
TI Conditional activation defect of a human Gsalpha mutant.
AU Iiri T; Farfel Z; Bourne H R
CS Department of Cellular and Molecular Pharmacology, S-1212, Box 0450,

University of California, San Francisco, CA 94143, USA.
NC GM27800 (NIGMS)
SO PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, (1997 May 27) 94 (11) 5656-61.
Journal code: 7505876. ISSN: 0027-8424.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199706
ED Entered STN: 19970630
Last Updated on STN: 20000303
Entered Medline: 19970619

L1 ANSWER 74 OF 143 MEDLINE
AN 97256623 MEDLINE
DN 97256623 PubMed ID: 9103464
TI Genetically engineered nontoxic vaccine adjuvant that combines B cell targeting with immunomodulation by **cholera toxin** A1 subunit.
AU Agren L C; Ekman L; Lowenadler B; Lycke N Y
CS Department of Medical Microbiology and Immunology, University of Goteborg, Sweden.
SO JOURNAL OF IMMUNOLOGY, (1997 Apr 15) 158 (8) 3936-46.
Journal code: 2985117R. ISSN: 0022-1767.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 199705
ED Entered STN: 19970514
Last Updated on STN: 19970514
Entered Medline: 19970505

L1 ANSWER 75 OF 143 MEDLINE
AN 97184691 MEDLINE
DN 97184691 PubMed ID: 9032075
TI A conserved infection pathway for filamentous bacteriophages is suggested by the structure of the membrane penetration domain of the minor coat protein g3p from phage fd.
AU Holliger P; Riechmann L
CS MRC Centre for Protein Engineering, MRC Laboratory of Molecular Biology, Hills Road, Cambridge CB2 2QH, UK.
SO STRUCTURE, (1997 Feb 15) 5 (2) 265-75.
Journal code: 9418985. ISSN: 0969-2126.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199706
ED Entered STN: 19970612
Last Updated on STN: 19970612
Entered Medline: 19970603

L1 ANSWER 76 OF 143 MEDLINE
AN 97158675 MEDLINE
DN 97158675 PubMed ID: 9006035
TI Autodisplay: one-component system for efficient surface display and release of soluble recombinant proteins from Escherichia coli.
AU Maurer J; Jose J; Meyer T F
CS Abteilung Infektionsbiologie, Max-Planck-Institut fur Biologie, Tubingen, Germany.
SO JOURNAL OF BACTERIOLOGY, (1997 Feb) 179 (3) 794-804.
Journal code: 2985120R. ISSN: 0021-9193.

CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
OS GENBANK-X65022
EM 199702
ED Entered STN: 19970313
Last Updated on STN: 20000303
Entered Medline: 19970228

L1 ANSWER 77 OF 143 MEDLINE
AN 97144430 MEDLINE
DN 97144430 PubMed ID: 8990197
TI Cyclic AMP and its receptor protein negatively regulate the coordinate expression of **cholera toxin** and toxin-coregulated pilus in Vibrio cholerae.
AU Skorupski K; Taylor R K
CS Department of Microbiology, Dartmouth Medical School, Hanover, NH 03755, USA.. karen.skorupski@dartmouth.edu
NC AI-25096 (NIAID)
AI-39654 (NIAID)
SO PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, (1997 Jan 7) 94 (1) 265-70.
Journal code: 7505876. ISSN: 0027-8424.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
OS GENBANK-U87623
EM 199702
ED Entered STN: 19970227
Last Updated on STN: 19990129
Entered Medline: 19970213

L1 ANSWER 78 OF 143 MEDLINE
AN 97080554 MEDLINE
DN 97080554 PubMed ID: 8921899
TI Absence of periplasmic DsbA oxidoreductase facilitates export of cysteine-containing passenger proteins to the Escherichia coli cell surface via the Iga beta autotransporter pathway.
AU Jose J; Kramer J; Klauser T; Pohlner J; Meyer T F
CS Max-Planck-Institut fur Biologie, Abteilung Infektionsbiologie, Tubingen, Germany.
SO GENE, (1996 Oct 31) 178 (1-2) 107-10.
Journal code: 7706761. ISSN: 0378-1119.
CY Netherlands
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
OS GENBANK-X80762
EM 199612
ED Entered STN: 19970128
Last Updated on STN: 20000303
Entered Medline: 19961231

L1 ANSWER 79 OF 143 MEDLINE
AN 96390007 MEDLINE
DN 96390007 PubMed ID: 8797101
TI Expression of the **cholera toxin** B subunit in the Golgi apparatus of Swiss 3T3 cells inhibits DNA synthesis induced by basic fibroblast growth factor.
AU Hashimoto Y; Oshima A; Narimatsu H; Suzuki A
CS Department of Membrane Biochemistry, Tokyo Metropolitan Institute of Medical Science.

SO JOURNAL OF BIOCHEMISTRY, (1996 May) 119 (5) 985-90.
Journal code: 0376600. ISSN: 0021-924X.
CY Japan
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
OS GENBANK-D29805
EM 199704
ED Entered STN: 19970414
Last Updated on STN: 20000303
Entered Medline: 19970401

L1 ANSWER 80 OF 143 MEDLINE
AN 96355602 MEDLINE
DN 96355602 PubMed ID: 8703012
TI Cloning and characterization of a novel membrane-associated lymphocyte NAD:arginine ADP-ribosyltransferase.
AU Okazaki I J; Kim H J; Moss J
CS Pulmonary-Critical Care Medicine Branch, NHLBI, National Institutes of Health, Bethesda, Maryland 20892, USA.
SO JOURNAL OF BIOLOGICAL CHEMISTRY, (1996 Sep 6) 271 (36) 22052-7.
Journal code: 2985121R. ISSN: 0021-9258.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
OS GENBANK-U60881
EM 199610
ED Entered STN: 19961022
Last Updated on STN: 19961022
Entered Medline: 19961010

L1 ANSWER 81 OF 143 MEDLINE
AN 96291678 MEDLINE
DN 96291678 PubMed ID: 8764508
TI Construction of CTB **fusion proteins** for screening of monoclonal antibodies against Salmonella typhi OmpC peptide loops.
AU Paniagua-Solis J; Sanchez J; Ortiz-Navarrete V; Gonzalez C R; Isibasi A
CS Unidad de Investigacion Medica en Immunoquimica, Hospital de Especialidades, Instituto Mexicano del Seguro Social, Mexico City, Mexico.
SO FEMS MICROBIOLOGY LETTERS, (1996 Jul 15) 141 (1) 31-6.
Journal code: 7705721. ISSN: 0378-1097.
CY Netherlands
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199703
ED Entered STN: 19970327
Last Updated on STN: 19970327
Entered Medline: 19970319

L1 ANSWER 82 OF 143 MEDLINE
AN 96247628 MEDLINE
DN 96247628 PubMed ID: 8666780
TI Distinct effects of recombinant **cholera toxin** B subunit and holotoxin on different stages of class II MHC antigen processing and presentation by macrophages.
AU Matousek M P; Nedrud J G; Harding C V
CS Institute of Pathology, Case Western Reserve University, Cleveland, Ohio 44106, USA.
NC AI 34343 (NIAID)
AI 35726 (NIAID)
HL 37117 (NHLBI)
SO JOURNAL OF IMMUNOLOGY, (1996 Jun 1) 156 (11) 4137-45.

Journal code: 2985117R. ISSN: 0022-1767.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 199608
ED Entered STN: 19960819
Last Updated on STN: 19960819
Entered Medline: 19960808

L1 ANSWER 83 OF 143 MEDLINE
AN 96165262 MEDLINE
DN 96165262 PubMed ID: 8576041
TI Genetic analysis of the interaction between Vibrio cholerae transcription activator ToxR and toxT promoter DNA.
AU Higgins D E; DiRita V J
CS Department of Microbiology and Immunology, University of Michigan Medical School, Ann Arbor 48109, USA.
NC AI-31645 (NIAID)
M01 RR-00042 (NCRR)
RR-00200 (NCRR)
SO JOURNAL OF BACTERIOLOGY, (1996 Feb) 178 (4) 1080-7.
Journal code: 2985120R. ISSN: 0021-9193.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199603
ED Entered STN: 19960321
Last Updated on STN: 19960321
Entered Medline: 19960314

L1 ANSWER 84 OF 143 MEDLINE
AN 96164461 MEDLINE
DN 96164461 PubMed ID: 8578832
TI Induction of systemic immune responses to measles virus synthetic peptides administered intranasally.
AU Hathaway L J; Partidos C D; Vohra P; Steward M W
CS Department of Clinical Sciences, London School of Hygiene and Tropical Medicine, UK.
SO VACCINE, (1995 Nov) 13 (16) 1495-500.
Journal code: 8406899. ISSN: 0264-410X.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199603
ED Entered STN: 19960321
Last Updated on STN: 19960321
Entered Medline: 19960312

L1 ANSWER 85 OF 143 MEDLINE
AN 96146748 MEDLINE
DN 96146748 PubMed ID: 8553582
TI Priming of measles virus-specific CTL responses after immunization with a CTL epitope linked to a fusogenic peptide.
AU Partidos C D; Vohra P; Steward M W
CS Department of Clinical Sciences, London School of Hygiene and Tropical Medicine, United Kingdom.
SO VIROLOGY, (1996 Jan 1) 215 (1) 107-10.
Journal code: 0110674. ISSN: 0042-6822.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English

FS Priority Journals
EM 199602
ED Entered STN: 19960306
Last Updated on STN: 19970203
Entered Medline: 19960222

L1 ANSWER 86 OF 143 MEDLINE
AN 96112457 MEDLINE
DN 96112457 PubMed ID: 8678289
TI Detection of arginine-ADP-ribosylated protein using recombinant ADP-ribosylarginine hydrolase.
AU Ohno T; Tsuchiya M; Osago H; Hara N; Jidoi J; Shimoyama M
CS Department of Biochemistry, Shimane Medical University, Japan.
SO ANALYTICAL BIOCHEMISTRY, (1995 Oct 10) 231 (1) 115-22.
Journal code: 0370535. ISSN: 0003-2697.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199608
ED Entered STN: 19960822
Last Updated on STN: 19960822
Entered Medline: 19960813

L1 ANSWER 87 OF 143 MEDLINE
AN 96096516 MEDLINE
DN 96096516 PubMed ID: 8522171
TI Characterization of an internal permissive site in the **cholera toxin** B-subunit and insertion of epitopes from human immunodeficiency virus-1, hepatitis B virus and enterotoxigenic Escherichia coli.
AU Bckstrom M; Holmgren J; Schodel F; Lebens M
CS Department of Medical Microbiology and Immunology, Goteborg University, Sweden.
SO GENE, (1995 Nov 20) 165 (2) 163-71.
Journal code: 7706761. ISSN: 0378-1119.
CY Netherlands
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals; AIDS
EM 199601
ED Entered STN: 19960219
Last Updated on STN: 19970203
Entered Medline: 19960122

L1 ANSWER 88 OF 143 MEDLINE
AN 96021579 MEDLINE
DN 96021579 PubMed ID: 7483767
TI Gene fusion of **cholera toxin** B subunit and HBV PreS2 epitope and the antigenicity of **fusion protein**.
AU Shi C H; Cao C; Xhig J S; Li J; Ma Q J
CS Molecular Genetics Center, Institute of Biotechnology, Beijing, Republic of China.
SO VACCINE, (1995 Jul) 13 (10) 933-7.
Journal code: 8406899. ISSN: 0264-410X.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199512
ED Entered STN: 19960124
Last Updated on STN: 19960124
Entered Medline: 19951228

L1 ANSWER 89 OF 143 MEDLINE
AN 96003899 MEDLINE
DN 96003899 PubMed ID: 7575483
TI Quantification of signalling components and amplification in the beta-adrenergic-receptor-adenylate cyclase pathway in isolated adult rat ventricular myocytes.
AU Post S R; Hilal-Dandan R; Urasawa K; Brunton L L; Insel P A
CS Department of Pharmacology, University of California, San Diego, La Jolla 92093-0636, USA.
NC GM40781 (NIGMS)
HL17682 (NHLBI)
HL53773 (NHLBI)
+
SO BIOCHEMICAL JOURNAL, (1995 Oct 1) 311 (Pt 1) 75-80.
Journal code: 2984726R. ISSN: 0264-6021.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199511
ED Entered STN: 19951227
Last Updated on STN: 20000303
Entered Medline: 19951109

L1 ANSWER 90 OF 143 MEDLINE
AN 95387387 MEDLINE
DN 95387387 PubMed ID: 7658465
TI Immunoglobulin mutant library genetically screened for folding stability exploiting bacterial signal transduction.
AU Kolmar H; Frisch C; Gotze K; Fritz H J
CS Institut fur Molekulare Genetik, Gottingen, F.R.G.
SO JOURNAL OF MOLECULAR BIOLOGY, (1995 Aug 25) 251 (4) 471-6.
Journal code: 2985088R. ISSN: 0022-2836.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199510
ED Entered STN: 19951013
Last Updated on STN: 19970203
Entered Medline: 19951002

L1 ANSWER 91 OF 143 MEDLINE
AN 95278726 MEDLINE
DN 95278726 PubMed ID: 7758939
TI C-terminal glycine-histidine tagging of the outer membrane protein Iga beta of Neisseria gonorrhoeae.
AU Strauss A; Pohlner J; Klauser T; Meyer T F
CS Max-Planck-Institut fur Biologie, Abteilung Infektionsbiologie, Tubingen, Germany.
SO FEMS MICROBIOLOGY LETTERS, (1995 Apr 1) 127 (3) 249-54.
Journal code: 7705721. ISSN: 0378-1097.
CY Netherlands
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199506
ED Entered STN: 19950707
Last Updated on STN: 20000303
Entered Medline: 19950629

L1 ANSWER 92 OF 143 MEDLINE
AN 95278516 MEDLINE
DN 95278516 PubMed ID: 7758745

TI A pleiotropic secretion mutant of Aeromonas hydrophila is unable to secrete heterologously expressed E. coli enterotoxin: implication for common mechanisms of protein secretion.
AU Yu J; Hirst T R
CS Research School of Biosciences, University of Kent, Canterbury, U.K.
SO BIOCHEMICAL SOCIETY TRANSACTIONS, (1995 Feb) 23 (1) 34S.
Journal code: 7506897. ISSN: 0300-5127.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199506
ED Entered STN: 19950707
Last Updated on STN: 19990129
Entered Medline: 19950626

L1 ANSWER 93 OF 143 MEDLINE
AN 95267992 MEDLINE
DN 95267992 PubMed ID: 7538334
TI Role of cyclic nucleotides and nitric oxide in blood mononuclear cell IgE production stimulated by IL-4.
AU Paul-Eugene N; Pene J; Bousquet J; Dugas B
CS INSERM/CJF 92-10, Hopital Arnaud de Villeneuve, Montpellier, France.
SO CYTOKINE, (1995 Jan) 7 (1) 64-9.
Journal code: 9005353. ISSN: 1043-4666.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199506
ED Entered STN: 19950629
Last Updated on STN: 19960129
Entered Medline: 19950621

L1 ANSWER 94 OF 143 MEDLINE
AN 95255224 MEDLINE
DN 95255224 PubMed ID: 7737119
TI Interaction between the autokinase EpsE and EpsL in the cytoplasmic membrane is required for extracellular secretion in Vibrio cholerae.
AU Sandkvist M; Bagdasarian M; Howard S P; DiRita V J
CS University of Michigan Medical School, Department of Microbiology and Immunology, Ann Arbor, USA.
NC AI-31645 (NIAID)
MO1 RR-00024 (NCRR)
T32 AI 07360 (NIAID)
+
SO EMBO JOURNAL, (1995 Apr 18) 14 (8) 1664-73.
Journal code: 8208664. ISSN: 0261-4189.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199506
ED Entered STN: 19950615
Last Updated on STN: 19950615
Entered Medline: 19950606

L1 ANSWER 95 OF 143 MEDLINE
AN 95201292 MEDLINE
DN 95201292 PubMed ID: 7894059
TI The accessory colonization factor and toxin-coregulated pilus gene clusters are physically linked on the Vibrio cholerae 0395 chromosome.
AU Everiss K D; Hughes K J; Peterson K M
CS Department of Microbiology and Immunology, Louisiana State University

Medical Center, Shreveport 71130-3932.
NC AI 28502 (NIAID)
SO DNA SEQUENCE, (1994) 5 (1) 51-5.
Journal code: 9107800. ISSN: 1042-5179.
CY Switzerland
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
OS GENBANK-L25661
EM 199504
ED Entered STN: 19950504
Last Updated on STN: 19960129
Entered Medline: 19950425

L1 ANSWER 96 OF 143 MEDLINE
AN 95197259 MEDLINE
DN 95197259 PubMed ID: 7890393
TI Oral immunization with the dodecapeptide repeat of the serine-rich Entamoeba histolytica protein (SREHP) fused to the **cholera toxin** B subunit induces a mucosal and systemic anti-SREHP antibody response.
AU Zhang T; Li E; Stanley S L Jr
CS Department of Medicine, Washington University School of Medicine, St. Louis, Missouri 63110.
NC AI01231 (NIAID)
DK02072 (NIDDK)
R01AI30084 (NIAID)
SO INFECTION AND IMMUNITY, (1995 Apr) 63 (4) 1349-55.
Journal code: 0246127. ISSN: 0019-9567.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199504
ED Entered STN: 19950427
Last Updated on STN: 19950427
Entered Medline: 19950420

L1 ANSWER 97 OF 143 MEDLINE
AN 95152368 MEDLINE
DN 95152368 PubMed ID: 7849584
TI Protein crystallography and infectious diseases.
AU Verlinde C L; Merritt E A; Van den Akker F; Kim H; Feil I; Delboni L F; Mande S C; Sarfaty S; Petra P H; Hol W G
CS Department of Biological Structure, University of Washington, Seattle 98195.
NC AI3450 (NIAID)
SO PROTEIN SCIENCE, (1994 Oct) 3 (10) 1670-86. Ref: 112
Journal code: 9211750. ISSN: 0961-8368.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LA English
FS Priority Journals
EM 199503
ED Entered STN: 19950322
Last Updated on STN: 19980206
Entered Medline: 19950313

L1 ANSWER 98 OF 143 MEDLINE
AN 95128188 MEDLINE
DN 95128188 PubMed ID: 7827509
TI Recombinant **cholera toxin** B subunit in Escherichia

coli: high-level secretion, purification, and characterization.
AU Slos P; Speck D; Accart N; Kolbe H V; Schubnel D; Bouchon B; Bischoff R; Kieny M P
CS Department of Bacterial Vectors, TRANSGENE S. A., Strasbourg, France.
SO PROTEIN EXPRESSION AND PURIFICATION, (1994 Oct) 5 (5) 518-26.
Journal code: 9101496. ISSN: 1046-5928.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199502
ED Entered STN: 19950307
Last Updated on STN: 19950307
Entered Medline: 19950221

L1 ANSWER 99 OF 143 MEDLINE
AN 95089685 MEDLINE
DN 95089685 PubMed ID: 7997165
TI Analysis of membrane protein interaction: ToxR can dimerize the amino terminus of phage lambda repressor.
AU Dziejman M; Mekalanos J J
CS Department of Microbiology and Molecular Genetics, Harvard Medical School, Boston, Massachusetts 02115.
NC AI-18045 (NIAID)
SO MOLECULAR MICROBIOLOGY, (1994 Aug) 13 (3) 485-94.
Journal code: 8712028. ISSN: 0950-382X.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199501
ED Entered STN: 19950126
Last Updated on STN: 19950126
Entered Medline: 19950117

L1 ANSWER 100 OF 143 MEDLINE
AN 95047479 MEDLINE
DN 95047479 PubMed ID: 7525413
TI Insertion of a HIV-1-neutralizing epitope in a surface-exposed internal region of the **cholera toxin** B-subunit.
AU Backstrom M; Lebens M; Schodel F; Holmgren J
CS Department of Medical Microbiology and Immunology, University of Goteborg, Sweden.
SO GENE, (1994 Nov 18) 149 (2) 211-7.
Journal code: 7706761. ISSN: 0378-1119.
CY Netherlands
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals; AIDS
EM 199412
ED Entered STN: 19950110
Last Updated on STN: 19970203
Entered Medline: 19941227

=> display l1
ENTER ANSWER NUMBER OR RANGE (1):52,56-60,66,68,74,81,82,84,87,88,97
ENTER DISPLAY FORMAT (BIB):bib abs

L1 ANSWER 52 OF 143 MEDLINE
AN 1999002398 MEDLINE
DN 99002398 PubMed ID: 9788349
TI A plant-based **cholera toxin** B subunit-insulin **fusion protein** protects against the development of

autoimmune diabetes.
AU Arakawa T; Yu J; Chong D K; Hough J; Engen P C; Langridge W H
CS Center for Molecular Biology and Gene Therapy, Department of Microbiology and Molecular Genetics, School of Medicine, Loma Linda University, CA 92350, USA.
SO NATURE BIOTECHNOLOGY, (1998 Oct) 16 (10) 934-8.
Journal code: 9604648. ISSN: 1087-0156.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199812
ED Entered STN: 19990115
Last Updated on STN: 19990115
Entered Medline: 19981228
AB Oral administration of disease-specific autoantigens can prevent or delay the onset of autoimmune disease symptoms. We have generated transgenic potato plants that synthesize human insulin, a major insulin-dependent diabetes mellitus autoantigen, at levels up to 0.05% of total soluble protein. To direct delivery of plant-synthesized insulin to the gut-associated lymphoid tissues, insulin was linked to the C-terminus of the **cholera toxin** B subunit (CTB). Transgenic potato tubers produced 0.1% of total soluble protein as the pentameric CTB-insulin fusion, which retained GM1-ganglioside binding affinity and native antigenicity of both CTB and insulin. Nonobese diabetic mice fed transformed potato tuber tissues containing microgram amounts of the CTB-insulin **fusion protein** showed a substantial reduction in pancreatic islet inflammation (insulitis), and a delay in the progression of clinical diabetes. Feeding transgenic potato tissues producing insulin or CTB protein alone did not provide a significant reduction in insulitis or diabetic symptoms. The experimental results indicate that food plants are feasible production and delivery systems for immunotolerization against this T cell-mediated autoimmune disease.

L1 ANSWER 56 OF 143 MEDLINE
AN 1998380378 MEDLINE
DN 98380378 PubMed ID: 9712781
TI Effectiveness of liposomes possessing surface-linked recombinant B subunit of **cholera toxin** as an oral antigen delivery system.
AU Harokopakis E; Hajishengallis G; Michalek S M
CS Departments of Microbiology and Oral Biology, University of Alabama at Birmingham, Birmingham, Alabama 35294, USA.
NC AI 33544 (NIAID)
DE 08182 (NIDCR)
DE 09081 (NIDCR)
+
SO INFECTION AND IMMUNITY, (1998 Sep) 66 (9) 4299-304.
Journal code: 0246127. ISSN: 0019-9567.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199810
ED Entered STN: 19981020
Last Updated on STN: 20000303
Entered Medline: 19981002
AB Liposomes appear to be a promising oral antigen delivery system for the development of vaccines against infectious diseases, although their uptake efficiency by Peyer's patches in the gut and the subsequent induction of mucosal immunoglobulin A (IgA) responses remain a major concern. Aiming at targeted delivery of liposomal immunogens, we have previously reported the conjugation via a thioether bond of the GM1 ganglioside-binding subunit of **cholera toxin** (CTB) to the liposomal outer surface. In the present study, we have investigated the effectiveness of liposomes

containing the saliva-binding region (SBR) of Streptococcus mutans AgI/II adhesin and possessing surface-linked recombinant CTB (rCTB) in generating mucosal (salivary, vaginal, and intestinal) IgA as well as serum IgG responses to the parent molecule, AgI/II. Responses in mice given a single oral dose of the rCTB-conjugated liposomes were compared to those in mice given one of the following unconjugated liposome preparations: (i) empty liposomes, (ii) liposomes containing SBR, (iii) liposomes containing SBR and coadministered with rCTB, and (iv) liposomes containing SBR plus rCTB. Three weeks after the primary immunization, significantly higher levels of mucosal IgA and serum IgG antibodies to AgI/II were observed in the rCTB-conjugated group than in mice given the unconjugated liposome preparations, although the latter mice received a booster dose at week 9. The antibody responses in mice immunized with rCTB-conjugated liposomes persisted at high levels for at least 6 months, at which time (week 26) a recall immunization significantly augmented the responses. In general, mice given unconjugated liposome preparations required one or two booster immunizations to develop a substantial anti-AgI/II antibody response, which was more prominent in the group given coencapsulated SBR and rCTB. These data indicate that conjugation of rCTB to liposomes greatly enhances their effectiveness as an antigen delivery system. This oral immunization strategy should be applicable for the development of vaccines against oral, intestinal, or sexually transmitted diseases.

L1 ANSWER 57 OF 143 MEDLINE
AN 1998346502 MEDLINE
DN 98346502 PubMed ID: 9682972
TI A novel concept in mucosal adjuvanticity: the CTA1-DD adjuvant is a B cell-targeted **fusion protein** that incorporates the enzymatically active **cholera toxin** A1 subunit.
AU Agren L; Lowenadler B; Lycke N
CS Department of Medical Microbiology and Immunology, University of Goteborg, Sweden.
SO IMMUNOLOGY AND CELL BIOLOGY, (1998 Jun) 76 (3) 280-7. Ref: 47
Journal code: 8706300. ISSN: 0818-9641.
CY Australia
DT Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LA English
FS Priority Journals
EM 199904
ED Entered STN: 19990426
Last Updated on STN: 19990426
Entered Medline: 19990413
AB A promising novel concept in mucosal adjuvant research is demonstrated here. The adjuvant and toxic effects of the **cholera toxin** (CT) have been successfully separated in a gene **fusion protein**, CTA1-DD. This protein consists of the ADP-ribosylating A1 subunit of CT linked to a synthetic analogue of protein A. The CTA1-DD protein was found to exert comparable adjuvant activity to that of CT after systemic as well as mucosal immunizations with soluble protein antigens, such as KLH or ovalbumin (OVA). However, contrary to CT it was completely non-toxic. The CTA1-DD approach to the construction of a potential vaccine adjuvant is unique and highly promising. Conceptually, the CTA1-DD **fusion protein** demonstrates that: (i) contrary to CT the CTA1-DD is a highly targeted adjuvant, directed to B cells and possibly other antigen-presenting cells; (ii) it is possible to introduce ADP-ribosyltransferase activity into cells via an alternative pathway to the GM1 receptor pathway used by CTB; (iii) the adjuvant effect of CTA1-DD, and possibly also of CT, depend on the enzymatic activity; and (iv) one possible mechanism, shared by CT, that may explain the adjuvant effect of CTA1-DD is its ability to induce expression of the costimulatory molecule CD86 on B cells.

L1 ANSWER 58 OF 143 MEDLINE
AN 1998285626 MEDLINE
DN 98285626 PubMed ID: 9621114
TI beta1,6 N-acetylglucosaminyltransferase (core 2 GlcNAc-T) expression in normal rat tissues and different cell lines: evidence for complex mechanisms of regulation.
AU VanderElst I E; Datti A
CS Department of Cell and Molecular Biology, Section of Biochemistry and Molecular Biology, University of Perugia, 06126 Perugia, Italy.
SO GLYCOBIOLOGY, (1998 Jul) 8 (7) 731-40.
Journal code: 9104124. ISSN: 0959-6658.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199808
ED Entered STN: 19980820
Last Updated on STN: 19980820
Entered Medline: 19980813
AB The distribution of the Golgi enzyme beta1, 6-N-acetylglucosaminyltransferase (core 2 GlcNAc-T for short) has been investigated in several tissue and cell systems by combining the potentials of a polyclonal antibody and a novel, sensitive fluorescent enzyme assay. In normal rat tissues, levels of the protein were found to vary and as a general trend did not correlate with enzyme activities. Additionally, we observed tissue-specific core 2 GlcNAc-T forms of various size: 75 kDa (liver), 70 kDa (spleen), 60 kDA (heart), and 50 kDa (heart and lung). These forms might arise from differential protein modifications; alternatively, the smaller form may be a product of proteolytic cleavage, given the presence of a catalytically inactive 50 kDa species in rat serum. Chinese hamster ovary (CHO), MDAY-D2, PSA-5E, and PYS-2 cell lines consistently displayed a 70 kDa enzyme. When induced to retrodifferentiate in the presence of butyrate + **cholera toxin**, CHO cells exhibited a 21-fold increase in enzyme activity, while protein levels remained constant. A similar trend was observed in the embryonal endoderm cell lines PSA-5E and PYS-2, where an approximately 100-fold difference in core 2 GlcNAc-T activity was found notwithstanding unchanged amounts of the protein and identical mRNA levels, as evidenced by RT-PCR. In contrast, levels of core 2 GlcNAc-T activity in MDAY-D2 cells correlated well with protein expression. Taken together, these observations demonstrate that core 2 GlcNAc-T expression may be subjected to multiple mechanisms of regulation and suggest that in at least some instances (i.e., PSA-5E and PYS-2 cells) expression may be regulated exclusively via posttranslational mechanism(s) of control.

L1 ANSWER 59 OF 143 MEDLINE
AN 1998282451 MEDLINE
DN 98282451 PubMed ID: 9618729
TI Mapping of B epitopes in GRA4, a dense granule antigen of Toxoplasma gondii and protection studies using recombinant proteins administered by the oral route.
AU Mevelec M N; Mercereau-Puijalon O; Buzoni-Gatel D; Bourguin I; Chardes T; Dubremetz J F; Bout D
CS CJF INSERM 93-09, UFR des Sciences Pharmaceutiques, Tours, France.
SO PARASITE IMMUNOLOGY, (1998 Apr) 20 (4) 183-95.
Journal code: 7910948. ISSN: 0141-9838.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199808
ED Entered STN: 19980828
Last Updated on STN: 19980828
Entered Medline: 19980820

AB GRA4, a dense granule protein of Toxoplasma gondii elicits both mucosal and systemic immune responses following oral infection of mice with cysts. We studied the antigenicity and immunogenicity of truncated and soluble forms of GRA4 expressed as glutathione S-transferase **fusion proteins** in Escherichia coli. Protein C (amino-acids 297-345) was particularly well recognized by serum IgG antibodies, milk IgA antibodies and intestinal IgA antibodies from T. gondii infected mice and by serum IgG antibodies from T. gondii infected humans and T. gondii infected sheep. One major B epitope was localized within the last 11 C-terminal residues of GRA4. A second epitope, recognized with lower frequency, was mapped within the region 318-334. In contrast, the N domain of GRA4 (amino acids 25-276) was poorly recognized. Oral immunization of C57BL/6 mice with N, C or NC (amino acids 25-276 fused to 297-345) in association with **cholera toxin** induced a significant production of serum anti-GRA4 IgG antibodies but a weak and inconsistent intestinal anti-GRA4 IgG antibody response and afforded partial resistance to oral infection with T. gondii. These results provide new molecular and immunological understanding of GRA4 and indicate that it is a potential candidate for oral vaccination against T. gondii.

L1 ANSWER 60 OF 143 MEDLINE
AN 1998269904 MEDLINE
DN 98269904 PubMed ID: 9607021
TI Protection against measles virus-induced encephalitis by antibodies from mice immunized intranasally with a synthetic peptide immunogen.
AU Hathaway L J; Obeid O E; Steward M W
CS London School of Hygiene and Tropical Medicine, UK.
SO VACCINE, (1998 Jan-Feb) 16 (2-3) 135-41.
Journal code: 8406899. ISSN: 0264-410X.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199806
ED Entered STN: 19980713
Last Updated on STN: 19980713
Entered Medline: 19980629
AB Balb/c mice were immunized intranasally (i.n.) with a chimeric synthetic peptide containing two copies of a T- and one copy of a B-cell epitope (TTB) from measles virus (MV) **fusion protein**, plus **cholera toxin** B (CTB) adjuvant. The antibodies induced cross-reacted with, and neutralized MV and on passive transfer, protected mice against encephalitis induced by neuroadapated MV. Immunization with TTB alone induced antibodies which increased survival but not significantly compared to controls. Furthermore, i.n. immunization with TTB plus CTB induced TTB-specific IgA antibodies in saliva and nasal washes. Co-administration of CTB increased the affinity of antibodies to the B-cell epitope of TTB and caused a relative increase in the level of anti-peptide antibodies of the IgG2a subclass and the overall titre of IgG antibodies. These results indicate the potential of the i.n. route for immunization with synthetic peptide immunogens for induction of both local and systemic anti-peptide antibody responses.

L1 ANSWER 66 OF 143 MEDLINE
AN 1998085272 MEDLINE
DN 98085272 PubMed ID: 9423288
TI Expression of **cholera toxin** B subunit oligomers in transgenic potato plants.
AU Arakawa T; Chong D K; Merritt J L; Langridge W H
CS Department of Microbiology and Molecular Genetics, School of Medicine, Loma Linda University, CA 92350, USA.
SO TRANSGENIC RESEARCH, (1997 Nov) 6 (6) 403-13.
Journal code: 9209120. ISSN: 0962-8819.
CY ENGLAND: United Kingdom

DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199802
ED Entered STN: 19980224
Last Updated on STN: 19980224
Entered Medline: 19980206
AB A gene encoding the **cholera toxin** B subunit protein (CTB), fused to an endoplasmic reticulum (ER) retention signal (SEKDEL) was inserted adjacent to the bi-directional mannopine synthase P2 promoter in a plant expression vector containing a bacterial luciferase AB fusion gene (luxF) linked to the P1 promoter. Potato leaf explants were transformed by Agrobacterium tumefaciens carrying the vector and kanamycin-resistant plants were regenerated. The CTB-SEKDEL fusion gene was identified in the genomic DNA of bioluminescent plants by polymerase chain reaction amplification. Immunoblot analysis indicated that plant-derived CTB protein was antigenically indistinguishable from bacterial CTB protein, and that oligomeric CTB molecules (M(r) approximately 50 kDa) were the dominant molecular species isolated from transgenic potato leaf and tuber tissues. Similar to bacterial CTB, plant-synthesized CTB dissociated into monomers (M(r) approximately 15 kDa) during heat or acid treatment. The maximum amount of CTB protein detected in auxin-induced transgenic potato leaf and tuber tissues was approximately 0.3% of total soluble plant protein. Enzyme-linked immunosorbent assay methods indicated that plant-synthesized CTB protein bound specifically to GM1-ganglioside, the natural membrane receptor of **cholera toxin**. In the presence of the SEKDEL signal, CTB protein accumulates in potato tissues and is assembled into an oligomeric form that retains native biochemical and immunological properties. The expression of oligomeric CTB protein with immunological and biochemical properties identical to native CTB protein in edible plants opens the way for preparation of inexpensive food plant-based oral vaccines for protection against cholera and other pathogens in endemic areas throughout the world.

L1 ANSWER 68 OF 143 MEDLINE
AN 1998035007 MEDLINE
DN 98035007 PubMed ID: 9368632
TI Strong mucosal adjuvanticity of **cholera toxin** within lipid particles of a new multiple emulsion delivery system for oral immunization.
AU Tomasi M; Dertzbaugh M T; Hearn T; Hunter R L; Elson C O
CS Division of Gastroenterology and Hepatology, University of Alabama at Birmingham 35294-0007, USA.
NC 2U01 AI 33231 (NIAID)
DK44240 (NIDDK)
SO EUROPEAN JOURNAL OF IMMUNOLOGY, (1997 Oct) 27 (10) 2720-5.
Journal code: 1273201. ISSN: 0014-2980.
CY GERMANY: Germany, Federal Republic of
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199712
ED Entered STN: 19980109
Last Updated on STN: 19980109
Entered Medline: 19971210
AB **Cholera toxin** (CT) is an effective mucosal adjuvant but causes significant intestinal secretion which limits its usefulness. In the present study we developed a new multiple emulsion (ME) delivery system into which antigen and CT could be incorporated and asked whether CT would retain its mucosal adjuvanticity when sequestered within emulsion particles. ME were selectively taken up into Peyer's patches, and those containing antigen plus CT generated intestinal secretory IgA and serum IgG antibody responses in mice comparable quantitatively and qualitatively

to those occurring after oral immunization with soluble antigen plus CT. The ME particles containing CT did not cause intestinal secretion. The adjuvanticity of CT within ME was due to the CT present in the inner aqueous phase of the ME and was lost if CT binding was blocked by pre-incubation with GM1 ganglioside. Proteins incorporated in ME were protected from external acid, protease, and bile. We conclude that CT sequestered in ME, although unable to bind to the epithelium and thus stimulate intestinal secretion, still retains its mucosal adjuvanticity. Thus, the ability of CT to bind to enterocytes is not obligatory for its mucosal adjuvanticity.

L1 ANSWER 74 OF 143 MEDLINE
AN 97256623 MEDLINE
DN 97256623 PubMed ID: 9103464
TI Genetically engineered nontoxic vaccine adjuvant that combines B cell targeting with immunomodulation by **cholera toxin** A1 subunit.
AU Agren L C; Ekman L; Lowenadler B; Lycke N Y
CS Department of Medical Microbiology and Immunology, University of Goteborg, Sweden.
SO JOURNAL OF IMMUNOLOGY, (1997 Apr 15) 158 (8) 3936-46.
Journal code: 2985117R. ISSN: 0022-1767.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 199705
ED Entered STN: 19970514
Last Updated on STN: 19970514
Entered Medline: 19970505
AB **Cholera toxin** (CT) is an exceptionally potent adjuvant but, unfortunately, also very toxic. Here we present a powerful new approach to separate toxicity from adjuvanticity by constructing a **fusion protein** that combines the enzymatically active **cholera toxin** A1 subunit (CTA1) with targeting to B cells. The CTA1 was genetically linked at its C-terminal end to two Ig-binding domains, DD, of staphylococcal protein A and produced in Escherichia coli. The highly purified, monomeric CTA1-DD **fusion protein**, with a molecular mass of 37 kDa, was found to exhibit strong ADP-ribosyltransferase activity and bound, via the DD moiety, to both Fc and Fab fragments and to all IgG subclasses--IgE, IgA, and IgM. After i.v. injection of the **fusion protein**, FACS analysis revealed binding of CTA1-DD to splenic IgM+ B cells, but not CD3+ T cells, indicating cell-specific targeting in vivo. Strikingly, we found that the adjuvant ability of CTA1-DD to enhance systemic IgG as well as mucosal IgA responses to the unrelated Ags, OVA, or keyhole limpet hemocyanin, administered i.v or intranasally, was comparable to that of intact CT. In addition, the enhancing effect on specific IgG1, IgG2a, and IgG2b responses mimicked that of CT and suggested involvement of both Th1 and Th2 CD4+ T cell activity. The CTA1-DD, as well as CT, up-regulated expression of the CD80 and CD86 molecules on the targeted B cells, indicating that enhanced T cell costimulation may be responsible for the adjuvant effect. Contrary to CT, however, CTA1-DD was completely nontoxic. Thus, the CTA1-DD adjuvant should find general applicability in systemic and mucosal vaccines, and the strategy used may also be explored for other regimens requiring targeted immunomodulation.

L1 ANSWER 81 OF 143 MEDLINE
AN 96291678 MEDLINE
DN 96291678 PubMed ID: 8764508
TI Construction of CTB **fusion proteins** for screening of monoclonal antibodies against Salmonella typhi OmpC peptide loops.
AU Paniagua-Solis J; Sanchez J; Ortiz-Navarrete V; Gonzalez C R; Isibasi A
CS Unidad de Investigacion Medica en Immunoquimica, Hospital de

Especialidades, Instituto Mexicano del Seguro Social, Mexico City, Mexico.
SO FEMS MICROBIOLOGY LETTERS, (1996 Jul 15) 141 (1) 31-6.
Journal code: 7705721. ISSN: 0378-1097.
CY Netherlands
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199703
ED Entered STN: 19970327
Last Updated on STN: 19970327
Entered Medline: 19970319
AB Mice were immunized with resin-bound peptides whose sequences have been proposed to be part of exposed loops in Salmonella typhi outer membrane protein OmpC. To screen hybridomas for monoclonal antibodies against those epitopes, we designed **fusion proteins** where the candidate peptide sequence was attached to the amino end of **cholera toxin** B-subunit (CTB). The constructed **fusion proteins** allowed the efficient selection of positive clones by GM1-ELISA. Selected antibodies recognized purified OmpC and whole Salmonella bacteria. This suggests a native structure of our genetically attached peptides in agreement with immunological properties reported for previous CTB recombinant **fusion proteins**. In a more general context, CTB hybrids could be used to screen for antibodies towards immunogenic epitopes in other systems. This might turn out to be particularly useful when producing antibodies against peptide sequences in microorganisms whose handling is difficult or that pose inherent health risks.

L1 ANSWER 82 OF 143 MEDLINE
AN 96247628 MEDLINE
DN 96247628 PubMed ID: 8666780
TI Distinct effects of recombinant **cholera toxin** B subunit and holotoxin on different stages of class II MHC antigen processing and presentation by macrophages.
AU Matousek M P; Nedrud J G; Harding C V
CS Institute of Pathology, Case Western Reserve University, Cleveland, Ohio 44106, USA.
NC AI 34343 (NIAID)
AI 35726 (NIAID)
HL 37117 (NHLBI)
SO JOURNAL OF IMMUNOLOGY, (1996 Jun 1) 156 (11) 4137-45.
Journal code: 2985117R. ISSN: 0022-1767.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 199608
ED Entered STN: 19960819
Last Updated on STN: 19960819
Entered Medline: 19960808
AB **Cholera toxin** (CT) is a potent mucosal adjuvant with enhancing effects on Ag presentation, although the mechanisms of its adjuvanticity remain poorly understood. Using an in vitro Ag presentation assay, we found CT and recombinant B subunit (rCTB) to have distinct effects on different stages of processing and class II MHC (MHC-II)-restricted presentation of hen egg lysozyme (HEL). CT treatment of macrophages resulted in enhanced presentation of soluble HEL(48-61) peptide to3A9 hybridoma cells. However, CT had inhibitory effects on intracellular processing of soluble native Ag. Thus, CT inhibited presentation when added prior to HEL, whereas presentation was enhanced when CT was added after HEL exposure and the generation of peptide-MHC-II complexes. Pretreatment of macrophages with CT also markedly inhibited phagocytic processing of a Crl-HEL **fusion protein** (containing the HEL(48-61) epitope) expressed in intact bacteria

(Escherichia coli HB101.Crl-HEL or Salmonella typhimurium 14028s.Crl-HEL), whereas addition of CT to macrophages after a 2-h incubation with the bacteria again enhanced presentation. CT produced little effect on overall uptake and catabolism of radiolabeled HEL or HB101.Crl-HEL. In contrast to the holotoxin, purified rCTB subunit did not inhibit intracellular processing of soluble or bacterial Ag, although it similarly enhanced the presentation of surface HEL-(48-61)-I-Ak complexes to 3A9 cells. These data suggest that the inhibitory effects of CT on Ag processing are mediated by the A subunit.

L1 ANSWER 84 OF 143 MEDLINE
AN 96164461 MEDLINE
DN 96164461 PubMed ID: 8578832
TI Induction of systemic immune responses to measles virus synthetic peptides administered intranasally.
AU Hathaway L J; Partidos C D; Vohra P; Steward M W
CS Department of Clinical Sciences, London School of Hygiene and Tropical Medicine, UK.
SO VACCINE, (1995 Nov) 13 (16) 1495-500.
Journal code: 8406899. ISSN: 0264-410X.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199603
ED Entered STN: 19960321
Last Updated on STN: 19960321
Entered Medline: 19960312
AB A systemic antibody response was induced when a chimeric peptide containing two copies of a promiscuous T-cell epitope and one copy of a B-cell epitope (TTB) from the **fusion protein** of measles virus (MV) was administered to mice intranasally without adjuvant. A higher antibody titre was produced when the peptide was administered intranasally with **cholera toxin** B subunit (CTB) as an adjuvant and these antibodies crossreacted with the MV. Furthermore, splenocytes from intranasally immunized mice proliferated in vitro in the presence of the TTB peptide. The immune response following intranasal immunization with the peptide was influenced by the MHC haplotype of the strain of mice used. Thus CBA and BALB/c mice were high responders whereas C57BL/6 mice were low responders. Although peptide administered intranasally with CTB to CBA mice induced an immune response, no significant protection was observed against intra-cranial challenge with canine distemper virus which is antigenically related to MV.

L1 ANSWER 87 OF 143 MEDLINE
AN 96096516 MEDLINE
DN 96096516 PubMed ID: 8522171
TI Characterization of an internal permissive site in the **cholera toxin** B-subunit and insertion of epitopes from human immunodeficiency virus-1, hepatitis B virus and enterotoxigenic Escherichia coli.
AU Bckstrom M; Holmgren J; Schodel F; Lebens M
CS Department of Medical Microbiology and Immunology, Goteborg University, Sweden.
SO GENE, (1995 Nov 20) 165 (2) 163-71.
Journal code: 7706761. ISSN: 0378-1119.
CY Netherlands
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals; AIDS
EM 199601
ED Entered STN: 19960219
Last Updated on STN: 19970203
Entered Medline: 19960122

AB We previously described the construction of novel hybrid proteins based on the B-subunit of **cholera toxin** (CTB) [Backstrom et al., Gene 149 (1994) 211-217], in which a neutralizing B-cell epitope from the third variable (V3) loop in the envelope glycoprotein gp120 from human immunodeficiency virus type 1 (HIV-1) was inserted within a surface-exposed region between amino acids (aa) 55 and 64. The resulting protein retained properties of native CTB and could induce strong anti-CTB antibody (Ab) responses, but the inserted gp120 epitope was only modestly immunogenic. In this study, the potential use of this internal permissive site in CTB for the insertion of heterologous epitopes has been further investigated. Six additional plasmids were constructed encoding HIV::CTB hybrid proteins with ten to fourteen aa from the V3 loop of gp120 genetically inserted at different positions between aa 52 and 65, with deletions of different CTB aa. Plasmids encoding proteins with peptides inserted between aa 53 and 64 in CTB gave rise to stable proteins which reacted with CTB-specific monoclonal antibodies (mAb) and bound to GM1 gangliosides (GM1), indicating that insertions between these positions do not drastically alter the conformation or the receptor-binding properties of native CTB. Plasmids were also constructed encoding CTB hybrid proteins which had either an 11-aa peptide from hepatitis B virus (HBV) pre-S(2) or one of two peptides related to the heat-stable toxin (STa) of enterotoxigenic Escherichia coli inserted between aa 55 and 64 of CTB. This resulted in the production of HBV::CTB or ST::CTB hybrid proteins and illustrated that the internal permissive site can be used for insertion of peptides of varying aa composition. The reactivity of the inserted epitopes with epitope-specific mAb in GM1-ELISA and immunoblots varied greatly between hybrid proteins and depended on the position in CTB and the aa composition of the inserted peptides. Despite these differences, all the HIV::CTB, ST::CTB and HBV::CTB hybrid proteins could induce low, but significant, levels of serum Ab in mice against gp120, STa or pre-S(2), in addition to strong serum Ab responses against CTB. The Ab response against the internally inserted gp120 peptide was similar to that against the same peptide fused to the N-terminus of CTB, indicating that internally placed peptides had similar immunogenicity to the same peptides added terminally.

L1 ANSWER 88 OF 143 MEDLINE
AN 96021579 MEDLINE
DN 96021579 PubMed ID: 7483767
TI Gene fusion of **cholera toxin** B subunit and HBV PreS2 epitope and the antigenicity of **fusion protein**.
AU Shi C H; Cao C; Xhig J S; Li J; Ma Q J
CS Molecular Genetics Center, Institute of Biotechnology, Beijing, Republic of China.
SO VACCINE, (1995 Jul) 13 (10) 933-7.
Journal code: 8406899. ISSN: 0264-410X.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199512
ED Entered STN: 19960124
Last Updated on STN: 19960124
Entered Medline: 19951228
AB A unique EcoRI site was introduced at the 3' end of **cholera toxin** B subunit (CTB) gene by site-directed mutagenesis, polynucleotides encoding 120-145aa epitope of HBV PreS2 were chemically synthesized and fused to the 3' end of **cholera toxin** B subunit gene. The fused gene was over-expressed (about 30 micrograms ml-1) in E. coli, and more than 95% of the **fusion protein** was secreted into the medium. The **fusion protein** expressed was purified by affinity chromatography. The chimera protein obtained bound to ganglioside GM1, and had the antigenicity of both **cholera toxin** B subunit and HBV PreS2 as confirmed by

ELISA. After mice were immunized intramuscularly with the **fusion protein**, anti-CTB antibody and anti-PreS2 antibody were produced. These results indicated that the **fusion protein** retained not only the biological function of CTB but also the antigenicity and the immunogenicity of **cholera toxin** B subunit and HBV PreS2 epitope. This work provided a sound basis for further studies on the construction of engineered peptide vaccine.

L1 ANSWER 97 OF 143 MEDLINE
AN 95152368 MEDLINE
DN 95152368 PubMed ID: 7849584
TI Protein crystallography and infectious diseases.
AU Verlinde C L; Merritt E A; Van den Akker F; Kim H; Feil I; Delboni L F; Mande S C; Sarfaty S; Petra P H; Hol W G
CS Department of Biological Structure, University of Washington, Seattle 98195.
NC AI3450 (NIAID)
SO PROTEIN SCIENCE, (1994 Oct) 3 (10) 1670-86. Ref: 112
Journal code: 9211750. ISSN: 0961-8368.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LA English
FS Priority Journals
EM 199503
ED Entered STN: 19950322
Last Updated on STN: 19980206
Entered Medline: 19950313
AB The current rapid growth in the number of known 3-dimensional protein structures is producing a database of structures that is increasingly useful as a starting point for the development of new medically relevant molecules such as drugs, therapeutic proteins, and vaccines. This development is beautifully illustrated in the recent book, Protein structure: New approaches to disease and therapy (Perutz, 1992). There is a great and growing promise for the design of molecules for the treatment or prevention of a wide variety of diseases, an endeavor made possible by the insights derived from the structure and function of crucial proteins from pathogenic organisms and from man. We present here 2 illustrations of structure-based drug design. The first is the prospect of developing antitrypanosomal drugs based on crystallographic, ligand-binding, and molecular modeling studies of glycolytic glycosomal enzymes from Trypanosomatidae. These unicellular organisms are responsible for several tropical diseases, including African and American trypanosomiases, as well as various forms of leishmaniasis. Because the target enzymes are also present in the human host, this project is a pioneering study in selective design. The second illustrative case is the prospect of designing anti-cholera drugs based on detailed analysis of the structure of **cholera toxin** and the closely related Escherichia coli heat-labile enterotoxin. Such potential drugs can be targeted either at inhibiting the toxin's receptor binding site or at blocking the toxin's intracellular catalytic activity. Study of the Vibrio cholerae and E. coli toxins serves at the same time as an example of a general approach to structure-based vaccine design. These toxins exhibit a remarkable ability to stimulate the mucosal immune system, and early results have suggested that this property can be maintained by engineered **fusion proteins** based on the native toxin structure. The challenge is thus to incorporate selected epitopes from foreign pathogens into the native framework of the toxin such that crucial features of both the epitope and the toxin are maintained. That is, the modified toxin must continue to evoke a strong mucosal immune response, and this response must be directed against an epitope conformation characteristic of the original pathogen.